ANALYSIS OF EXTENT OF COMPETITIVE PROCUREMENT BY DOD PRIME CONTRACTORS

(3A2)

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PREFACE

This project concentrates on examining the extent of competitive procurement accomplished by Prime Contractors in placing their subsystem and equipment contracts. The report presents findings on Prime Contractor subcontract policies, concepts, and procedures regarding competitive procurement, and recommends a Department of Defense guide on advance procurement planning, competitive forecasting, and summary progress reporting. It is emphasized that the recommendations contained in this report are intended only as a guide, not a directive. Further, the ideas presented in this report do not in any way represent a shift of procurement responsibility from Prime Contractors to the Department of Defense.

Participating prime contractor personnel expended much valuable time and effort in interviews with project members and in compiling and reporting procurement data. Their cooperation is sincerely appreciated.

Selected prime contractors agreed to provide procurement data, purchasing procedures, and equipment lists, with the understanding that such data would not be related to specific companies or programs. Therefore, such data are not related to source when they appear in the main body of the report. Various appendices contain source references, but only limited distribution will be made of them, based on prior prime contractor agreement.

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SECTION I

INTRODUCTION

This introductory section outlines report organization, establishes this project in context with other DoD-LMI competitive procurement studies, defines the task assigned and discusses the development of the project plan and approach.

A. REPORT ORGANIZATION

The composition of Section I, as described above, provides introductory and procedural information. Section II summarizes research findings and conclusions and recommendations. Section III discusses findings and conclusions in detail, while Section IV provides a full discussion of recommended action, procedures and implementation. Section V contains the various supporting appendices, including individual prime contractor competitive procurement activity, and savings analyses which are administrative confidential and will receive only limited distribution, based upon prior contractor agreement.

B. PROJECT BACKGROUND

The title of this project is Analysis of Extent of Competitive Procurement by DoD Prime Contractors. It is one of several related projects undertaken by LMI, dealing with the problems of obtaining optimum price competition in military procurement. The project is concerned primarily with identifying competition experienced by prime contractors in placing their equipment contracts.

Related DoD-LMI competitive procurement programs already undertaken are the End Item/Subsystem Competitive Decision Analysis Program, the Hi-Dollar Breakout Programs for Replenishment and Initial Spares, and the Resident Support Team concept for the analysis of major weapon system support equipment procurements. LMI work on Project 2B, Change Control, also provided support for this study inasmuch as contractor proposals for source changes based upon competition usually require prior Service approval as ECP's (Engineering Change Proposals).

C. PROJECT TASK ASSIGNMENT

The specific project tasks assigned as Phase I of this project and the subject of this report were:

1. Estimate, based on available historical and forecast data, the actual and planned dollar volume of procurement at selected prime contractor plants and structure this procurement universe into competitive versus non-competitive procurements.

2. Develop a summary reporting system on prime contractor procurements and make recommendations for integrating the competitive results as well as anticipated dollar savings into the DoD Cost Reduction Program.

3. Establish a practical method for analyzing the procurement plans of prime contractors and develop a competitive forecast technique to identify current or planned sole source procurements by prime contractors that are susceptible to transfer to competitive procurement.

In addition, in a letter dated 12 September, 1963, Mr. Thomas D. Morris, Assistant Secretary of Defense (Installations and Logistics), amended the task order as follows:

1. "One of the objectives of Phase I work will be to determine the feasibility of establishing a means of measuring the degree of competitive procurement obtained for past and future periods by a representative cross-section of Defense contractors. (The reporting group which has been established for the Small Business Program may provide an appropriate cross-section.)"

2. "Another objective is to determine the feasibility and potential (order of magnitude) of establishing goals for increased competitive procurement by prime contractors--to become a formal part of the DoD Cost Reduction Program. In respect to this latter point, it is desired that the Phase I study examine, on a pilot basis, how this might be accomplished in at least one major prime contractor's organization."

D. PROJECT PLAN

The project plan, based on the assigned tasks above, was composed of the following:

1. Develop a List of High Dollar, Low Competition DoD Weapon System Programs at Selected Prime Contractor Plants for Study. Weapon system programs and prime contractors were carefully selected to obtain a representative sample of programs, dollar magnitude, military cognizance, equipment and commodities across the Defense industry;

2. Develop a Set of CPE Competitive Procurement Reporting Formats. It was necessary to develop a specialized format compatible with the procurement practices and procedures of major prime contractors;

3. Conduct Field Reconnaissance at Selected Program Prime Contractor Plants. Personal fact-finding visits were arranged to solicit contractor participation, insure uniform format completion and to determine individual prime contractor and military plant representative attitudes, practices and plans concerning CFE competition;

4. Analyze Contractor Reports. Formats completed by prime contractors would require analysis and verification in order to identify significant trends, patterns and competitive problems in prime contractor procurements; and

5. Preparation of a Final Report. Finally, the plan called for the assembly of all related data and analysis, along with conclusions and recommended action, into final report form.

E. PROJECT APPROACH

1. Selecting Equipment Categories

In FY-62, Department of Defense world-wide procurements (excluding intragovernmental transactions) totaled $28.1 billion.[1] Of this total, $19.3 billion were spent for the ten equipment commodities normally associated with the largest incidence of contractor-furnished equipment (CFE). These ten equipment commodities and their respective FY-62 procurement values and competitive percentages are shown in Exhibit 1. DSA buys were excluded because of the very large amount of price competition (90%-95%) that already exists in this commodity category.

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[1] Directorate for Statistical Services, OSD.

COMMODITY SELECTION
HIGH CFE INCIDENCE EQUIPMENT
FY 1962

(DOLLARS IN MILLIONS)

EQUIPMENT COMMODITY	FY 1962 PROCUREMENT DATA			
	DOD BUY VALUE	PER CENT COMPETITIVE	LESS DSA BUY VALUE	NET VALUE
Airframes and Spares	$ 3,253.1	4.8%	$ *	$ 3,253.1
Aircraft Engines and Spares	1,222.2	4.3	0	1,222.2
Other Aircraft Equipment	771.0	21.9	0	771.0
Guided Missile Systems	6,834.1	3.2	1.0	6,833.1
Ships	1,513.0	63.6	*	1,513.0
Combat Vehicles	569.4	29.0	0	569.4
Non-Combat Vehicles	548.2	51.1	0	548.2
Weapons	223.7	39.9	*	223.7
Ammunition	929.8	23.5	0	929.8
Electronic & Communications Equipment	3,436.7	26.5	0.1	3,436.6
TOTAL	$19,301.2	NA	1.1	$19,300.1

* Less than $50,000

EXHIBIT 1

From this total of high CFE-incidence commodities, a workable few were selected with which to conduct the feasibility study. In attempting to select a manageable number of equipment commodities, the foremost objective was to have the survey represent the maximum amount of dollars possible. By inspection of Exhibit 1, it can be seen that Guided Missile Systems, Electronics and Communication Equipment, Airframes and Spares, Ships, Aircraft Engines and Spares had a net total procurement value of $16.3 billion in FY 62, or 84% of the $19.3 billion total of ten high CFE-incidence equipments mentioned above. This process reduced the list of ten items to five.

It was decided to eliminate Ships from this list of high-dollar equipment commodities. The reason was the predominance of firm fixed-price contracting and high percentage of price competition secured by DoD at the prime contract level.

The remaining four equipment commodities, with a net total FY 62 procurement value of $14.7 billion, accounted for 76% of total value of the original ten high-dollar commodities. These four commodities have the additional advantages, in terms of this study, of a high incidence of cost-type contracting and a generally very small amount of competition at the prime level. The latter circumstance means that competition identified between the primes and their subcontractors will not involve recounting competitive dollars since so few of the follow-on program dollars are competed at the prime contract level.

Generally, these commodities also comprise a significant amount of equipment dollars spent by each of the Services.

2. Selection of Prime Contractors

An examination was made of the list compiled by the Small Business Administration ranking the top 100 U. S. companies in terms of defense dollars awarded in FY 62. The total of defense awards to those 100 companies in FY 62 was $18.5 billion, or 72.3% of the $25.6 billion total of DoD awards in the U. S. for that fiscal year. By inspection, it was apparent that those companies which ranked in the top quarter (25) of the top 100 companies comprised the majority of prime contractors of the four equipment commodities selected for this study. The lower-ranked 75 companies are predominantly prime contractors for equipments in commodity areas other than the four selected for study purposes. The top 25 companies on the list were, therefore, selected as the base group within which study contacts would be made.

Exhibit 2 shows the top 25 U. S. companies as reported by the Small Business Administration, and the value of FY 62 defense awards made to each. The total of this group, $13 billion, is 50.8% of the total FY 62 awards made to the entire top 100-company list. The final prime contractor selection procedure is described below.

3. Selection of Data Summary Base

Much consideration was given to the manner in which the summary procurement data sought would be presented. Prime contractor company total versus divisional summaries were weighed, as were total commodity versus single program summaries.

EXHIBIT 2

TOP 25 DEFENSE CONTRACTORS

Ranked by Defense Awards

(FY 1962)

	Companies	Millions of Dollars	Percent of U.S. Total	Cumulative % of U.S. Total
	U. S. Total	$25,588.4	100.0%	100.0%
	100 Companies Total	18,497.2	72.3	72.3
* 1.	Lockheed Aircraft Corporation	$1,419.5	5.6	5.6
2.	General Dynamics Corporation	1,196.6	4.7	10.3
* 3.	Boeing Company	1,132.8	4.4	14.7
* 4.	North American Aviation, Inc.	1,032.5	4.0	18.7
* 5.	General Electric Company	975.9	3.8	22.5
* 6.	Martin Marietta Corporation	802.7	3.1	25.6
7.	United Aircraft Corporation	662.7	2.6	28.2
8.	American Telephone & Telegraph Company	467.7	1.8	30.0
9.	Sperry Rand Corporation	465.6	1.8	31.8
10.	General Motors Corporation	449.0	1.8	33.6
*11.	Raytheon Company	406.6	1.6	35.2
12.	General Tire & Rubber Company	366.1	1.4	36.6
*13.	Douglas Aircraft Company	365.6	1.4	38.0
14.	Radio Corporation of America	339.6	1.3	39.3
15.	Republic Aviation Corporation	332.8	1.3	40.6
16.	Avco Corporation	323.3	1.3	41.9
*17.	McDonnell Aircraft Corporation	310.9	1.2	43.1
18.	Grumman Aircraft Engineering Corp.	303.6	1.2	44.3
19.	Bendix Corporation	285.9	1.1	45.4
20.	Ford Motor Company	269.1	1.1	46.5
21.	Westinghouse Electric Corporation	246.0	1.0	47.5
22.	International Telephone & Telegraph	243.6	1.0	48.5
*23.	Hughes Aircraft Company	234.2	0.9	49.4
24.	American Machine & Foundry Co.	187.3	0.7	50.1
25.	Newport News Shipbuilding & Dry Dock Company	185.0	0.7	50.8
	Subtotal	$13,004.6		

* Prime Contractors participating in the study.

It was reasoned that program summaries would provide a better profile of competitive information, including past and future periods, if viewed over individual weapon system acquisition life cycles.

It was also believed that, if the more detailed program summaries were found feasible, it would be a relatively simple matter to combine program data into prime contractor plant summaries. Therefore, it became the aim of the project to ask the majority of selected primes to submit data by programs.

4. Selection of Specific Programs and Prime Contractors

As in the instances of commodity and prime contractor selection, it developed that certain programs predominated on a value basis. Within commodity categories and within prime contractor plants, a few big programs made up the majority of the total values involved.

Program value examination provided a list of programs representing a potential for maximum dollar value sampling. However, final program selection depended on factors such as program age, available procurement records, future production quantities anticipated, etc. After discussions with Department of Defense personnel and prime contractor personnel, a list of participating companies and selected programs was developed (see Exhibit 3).

EXHIBIT 3

SELECTED PROGRAM AND PRIME CONTRACTOR LIST

AIRCRAFT	
• C-141	Lockheed/Georgia
• F-4C	McDonnell Aircraft
• B-70	North American Aviation
• P-3A	Lockheed/California
MISSILES	
• MMRBM	Hughes Aircraft
• SPARROW III	Raytheon
ENGINES	
• J 79-15	General Electric
COMPANY-WIDE	
• ---	Douglas Aircraft
• ---	Martin Company

SECTION II

SUMMARY OF FINDINGS AND CONCLUSIONS AND RECOMMENDATIONS

Project findings and conclusions and recommendations are summarized in this section. Findings and conclusions are discussed fully in Section III and recommendations are presented in detail in Section IV.

A. SUMMARY OF FINDINGS AND CONCLUSIONS

The Department of Defense purchases approximately $20 billion of systems, subsystems and spare parts each year. A study of four high-dollar, low-commodity categories, missiles, aircraft, aircraft engines and electronics and communications equipment (which accounted for 75% of all non-competitive dollars spent by DoD in FY 62) indicated that:

1. Annual expenditures for these four commodities in FY 62 totaled approximately $15 billion;

2. Most of these dollars were directed to 25 major prime contractors in the defense industry, (see Exhibit 2); and

3. A sampling of nine major prime contractors representing a cross-section of these 25 prime contractors (see Exhibit 4) revealed that:

   a. Approximately 50% of a contractor's annual sales to the DoD is subcontracted out for major equipments and material purchases;

BREAKDOWN OF SELECTED PRIME CONTRACTOR - PROGRAM DOLLARS
(All Years for which Data were Received)

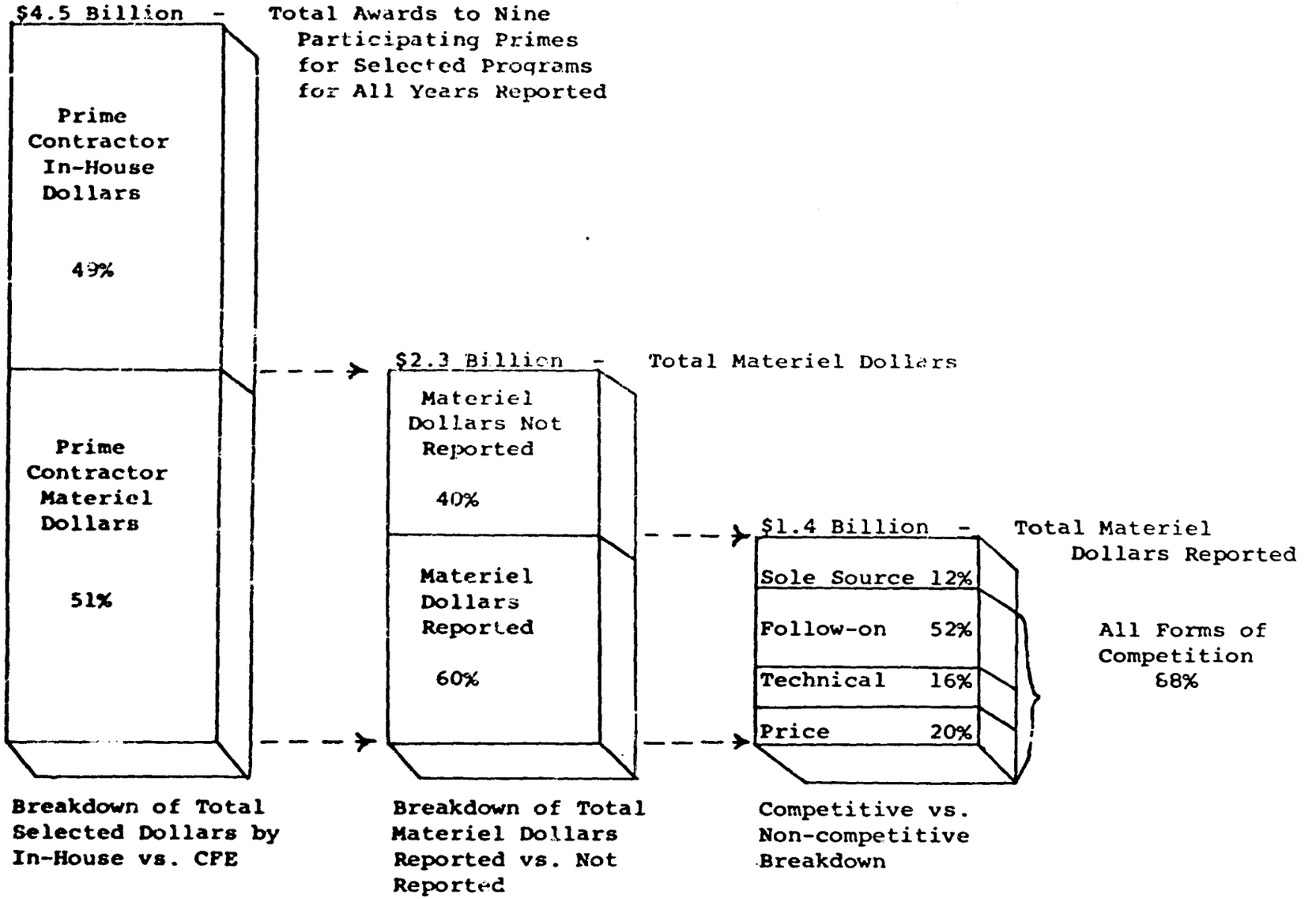


EXHIBIT 4

b. Price competition for these procurements ranged from a low of 3% to a high of 91% of the total dollars examined, with the average for all nine being 20%;

c. Total competitive actions, including price, technical and follow-on purchases to original price or technical competition, amounted to 88% of the total dollars evaluated; and

d. Non-competitive dollars ranged from 0% to 78% of the total of the nine company dollars sampled, with the average being 12%.

4. On major subsystems, prime contractors place considerable emphasis on initial competition. These decisions are usually based on multi-factor source selection procedures which include subcontractor evaluation based on technical, management, cost, quality assurance and reliability considerations. The final award is based on a composite of these criteria rather than any one factor such as cost. Once the contract has been awarded, prime contractors usually attempt to stay with the original source throughout the life of the program. Prime contractors believe strongly that both initial and follow-on procurement award dollars in the major subsystem category should be considered as competitive.

5. On common material and raw stock purchases, it appears that prime contractor purchasing departments are regularly subjecting most of these dollars to price competition on a year-by-year basis. It is doubtful that any substantial increase in price competition is possible in this area.

6. On follow-on production orders for equipments and components, below the subsystem level, where the design is stable and contract quantities are of sufficient size, considerable potential for price competition exists. It is in this area that an improvement in competitive performance may be possible, practical and desirable. Careful consideration must be given, however, prior to contract award, to the impact of source change on weapon configuration, spares support and logistics costs.

7. Competitive savings studied at one contractor plant averaged over 20%, with individual item savings ranging from 40% to less than 10%. At another plant, a total of 23 items were competed covering a two-year period, for a net savings of $4.6 million. These figures include consideration of off-setting logistics costs incurred by the Government as a result of introducing new sources. Analysis of competitive savings further supports the conclusion that the greatest potential pay-off for increased competitive procurement is in the equipment and component area below the subsystem level.

8. Current prime contractor programs for the advance planning of procurement of equipment and components are making substantial progress for improved decisions and better competitive performance. The programs involve annual review of sole source equipment items susceptible to competitive procurement, examination of product design stability and manufacturing criteria, analysis of qualification and tooling requirements and initial efforts at assessing the extent of possible logistics cost off-sets to competitive savings.

B. SUMMARY OF RECOMMENDATIONS

While contractor programs have gone far to increase the volume of price competition for contractor-furnished equipment and components, the wide divergence in items being procured and the varying levels of analysis being applied to them indicate that further benefits can be derived from increased focus on the problems of advance procurement planning, competitive forecasting and progress reporting. Recommended procedures to accomplish these objectives are summarized below.

1. Advanced Procurement Planning

The many contractor and military department policies and procedures concerned with competition for contractor-furnished equipment (CFE) undoubtedly contribute materially to the attainment of the goal of increased price competition. Within the area of planning, however, a need for improved item guidelines exists, including forecast requirements for three to five years in the future, with appropriate milestones established for accomplishment of specific procurement actions; the resulting information providing a scheduled framework for competitive analysis. A recommended CFE advance procurement planning method is presented in Section IV of the report.

2. Competitive Forecasting

The establishment of realistically engineered competitive goals on future contractor procurements is recommended. The approach presented in Section IV is the development of a CFE competitive dollar potential based on an item-by-item competitive analysis.

3. Competitive Progress Reporting

Once the competitive forecasts have been developed and target goals established, it appears desirable to examine on a periodic basis actual competitive performance versus planned achievement. A recommended progress report is offered in Section IV of the report.

4. Implementation and Follow-on Study

It is recommended that Advance Procurement Planning, Competitive Forecasting and Summary Progress Reporting be instituted by the Department of Defense in the top 25 prime contractor plants identified in Exhibit 2 of this report. It appears that the quickest and most effective means of implementing these recommendations is to tie the requirement into the DoD Cost Reduction Program. Regarding longer range applications, it is recommended that consideration be given to implementing a Contractor Procurement Review System (similar to the Air Force 70-3) at major Department of Defense Prime Contractor Plants. Further, it is suggested that current research in the areas of logistics impact--a real cost analysis--be expanded to cover CFE procurement, as well as direct Government purchasing. In addition, it is recommended that work begin on a study of the economics of GFE versus CFE procurement. The findings and recommendations of the current CFE study, together with LMI's previous work on GFE procurement, provide an excellent background for examination of this area.

SECTION III

A. INTRODUCTION

This section of the report presents findings and conclusions of field survey information, together with an evaluation of competitive problems faced by prime contractors in placing their major subcontract and equipment procurements. The first part of this section presents a summary of contractor responses to questions raised during preliminary field survey work. The second part presents summary statistics on the extent of competition reported by selected prime contractors. Finally, a discussion is provided concerning net savings actually achieved from competitive procurement at two separate prime contractor plants and what is believed to be the potential extent of competitive savings at the top 25 DoD prime contractor plants.

B. PRELIMINARY SURVEY RESULTS

1. Major Subsystems

On initial subsystem procurement, prime contractors place considerable emphasis on competitive bidding, but these decisions are usually based on a combination of technical and cost factors (i.e., design, reliability, test program, cost, etc.) rather than price alone. The research and development factor in these procurements makes technical or design criteria the predominant

feature. Consequently, on these programs, a major portion of the subcontract dollars are placed by technical-design competition rather than price competition.

On follow-on production buys of these major subsystems, prime contractors, in most cases, attempt to stay with the original source throughout the life of the program. This is so primarily because the initial developer (particularly on vendor-designed items) has a "built-in" technical-cost-schedule advantage that places severe limitations on effective competition. In many cases, substantial qualification testing, tooling and other non-recurring costs are invested at the time of initial contract award. Consequently, at the time of first production buy, it is often believed to be uneconomical and impossible from a time standpoint to compete. Moreover, primes assert that it is difficult to interest qualified subcontractors to bid, particularly if the investment costs are high and the production contract quantities are limited to a one-year procurement. Also, design changes, tight time schedules, overlapping R/D and production activities, and incomplete procurement data often are claimed to prohibit competitive procurement at the time of first production buy.

On second and subsequent production buys where the design is more stable and manufacturing data are available, competitive procurement is given more consideration by the primes. Often, at this point, however, only limited production quantities remain; and the original developer's built-in cost and technical advantage discourage prospective subcontractors from bidding. As a general

rule, it appears that major subsystem awards are initially technically competed and are not subsequently subjected to price competition.

2. Raw Stock/Material

In contrast to subsystem procurement, prime contractors have managed to bring about considerable price competition and recompetition of raw stock and common item purchases. The source selection procedures used for high-price subcontract items described above are uneconomical here; instead, catalog price, competitive basic agreements and negotiated competition are prevalent. Consequently, the possibilities for increases in price competition are minimal in this area.

3. Equipments and Components

Between subsystem procurement and common material purchases is a broad range of equipment and component buys--primarily mechanical and electrical items. For these items, tooling and qualification costs are often minimal and technical interface problems less severe than for subsystems. In addition, design stability and leadtime considerations for follow-on production buys are such that these items can often be subjected to price competition annually during the program acquisition life cycle. It is in this area, if any, that a potential for greater price competition exists.

It should be noted, however, that many of the items in this category are vendor-designed repairable equipments where introduction of new sources may have a significant impact on factors such as weapon configuration, spares support, logistics costs, etc. A recent

Air Force policy statement made by the Commander, Air Force Systems Command, placed considerable emphasis on this point. In part, the statement reads:

> The Air Force is very concerned over the additional costs (primarily logistics costs) accruing to the Government as a result of some Air Force contractors, engaged in weapons systems work, who are virtually changing vendors in an uncontrolled manner after the official configuration base line (FACI) has been established. The vendor items referred to herein are items which are Air Force repairable and designed by the vendor. A new source in essence introduces into the Air Force inventory a new and different item from that previously procured. Procurement of a new item usually results in a requirement for additional technical data, AGE and spare parts to support the new item. In addition, the new items add to internal AFLC costs.

The letter further states that:

> In order to assist AFLC with the above-mentioned logistics problem, your system CCB's must enforce configuration control of CFE vendor-designed items. Once the official base line configuration has been established by the CCB, any proposed use of a repairable vendor item involving Class I change criteria, whether due to procurement from a different vendor or otherwise, will be referred to the CCB for approval, using ECP procedures. The CCB will review the proposed change, and in addition to its normal deliberations with respect to safety of flight, mission essentiality, and reliability, the logistics cost impact will be considered.

As a consequence of this, some prime contractors voiced concern that competitive bidding through alternate sourcing might be more difficult to accomplish in the future. Most contractors believed, however, that a comprehensive logistics analysis was essential and should be accomplished prior to changing sources in the "mid-stream" of a program. It is our conclusion that while

delay may result from such analysis, the over-all benefits far outweigh this negative effect.

One contractor in particular recently completed a series of studies on 23 equipments involving source changes and competitive bidding. In each case, prior to contract award, the new source was evaluated to determine the impact of configuration control, documentation, spare parts, logistics costs, etc. It is significant that the Government after analyzing each of the equipments approved all 23 source changes. This was due primarily to the considerable net savings that were generated as a result of competition even after substantial off-setting logistics costs were applied to the bid figure. (A more detailed discussion of competitive savings versus logistics costs is presented in a later part of this report.)

After discussions to identify areas most susceptible to price competition, questions were raised as to the methods employed by contractors in measuring competitive procurement. At this time a number of problems were pointed out regarding the collection and use of competitive statistics.

C. PROBLEMS OF MEASURING PRIME CONTRACTOR COMPETITION

Question 1 of Exhibit 5 points out that the major obstacle to measuring prime contractor competition is the lack of available statistics. Initial contractor meetings clearly indicated that most companies specify maximum competition in their policy and procedures manuals but very few keep any summary statistics on competitive versus sole source

COMPANY E	NO	When 3 responsive bids are received.	NO, unless factors under 5 are remedied	NO, configuration control. In-house engineering approved new source qualification.	R&D emphasis has cut number of qual. sources. Insufficient quantities to dual source to qual. new source. Funding Lead time
COMPANY F	Y By d ion	When suppliers of comparable capabilities are given equal opportunity to bid.	YES, by concentrating on sole source item list of less complex items.	NO, not at present. However, strict ECP procedure could limit competition. YES-Engineer specified sources.	Technical risk and complexity cost. Lack of qualified suppliers. Engineered specified sources.
COMPANY G	YES, By division	When 2 or more bids are received.	YES, in follow-on equipment and component buys.	NO	Engineering specified sources. Tooling costs Qualification cost Administrative cost on low value items
COMPANY H	NO	When 2 or more qualified bid are received.	YES, using advanced planning, particularly to take advantage of follow-on buys.	Not significant.	Administrative workload Lead time Tooling cost Qualification cost
COMPANY I	NO	When 3 or more truly responsive bids are received.	YES, in the area of electronics and mechanical equipment when design is stable and data available.	Configuration control-NO Engineering directed-YES	Engineering specified sources. Proprietary data Lead time Qualification cost Tooling cost

SUMMARY RESPONSES TO PRIME CONTRACTOR QUESTIONNAIRE

COMPANIES	QUESTION NO. 1 Are Summary competitive/non-competitive statistics presently compiled? If so, in what detail?	QUESTION NO. 2 What definitions are used in competitive procurement policy?	QUESTION NO. 3 Is there potential for increased competitive procurement? If so, in what areas?	QUESTION NO. 4 To what extent do government & in-house engineering specified sources or configuration control directive limit competitive procurement?	QUESTION NO. 5 What are the major limiting factors to competitive procurement at the second tier?
	ANSWER NO. 1	ANSWER NO. 2	ANSWER NO. 3	ANSWER NO. 4	ANSWER NO. 5
COMPANY A	NO	When 3 or more competitive bids are received; several qualification and selection requirements exist.	NO	Significant amount of Government source direction.	Technical capability Interchangeability Tooling costs Qualification Testing
COMPANY B	NO	When 2 or more bids received and award made to lowest responsive/qualified bidder.	YES, in the area of follow-on buys and in minor sub-contracting and common item purchases.	YES, specifically Manual 375-2 and Schriever letter specifying Class 1 ECP procedure for source changes.	Funding Program risk Lead time R&D and production overlap Program concurrency
COMPANY C	NO	When 3 or more qualified sources solicited.	NO	NO	Technical risk Program concurrency
COMPANY D	NO	When 2 or more sources can be solicited.	R&D - NO Electro-Mechanical equipment follow-on production buys.	NO	Technical risk cost

EXHIBIT 5

procurement dollars. A number of companies did indicate that they were interested in the subject and were currently developing methods for collecting this type of information, but, in most cases, such new data systems would not be operational until after completion of the project report. It is believed that as more prime contracts become either incentive or fixed-price, prime contractors will put more emphasis on purchasing as a profit-making function and place more reliance on such reporting.

In addition to the lack of available statistics, a number of other problems associated with the broad range of diversified defense contractors and commodity categories (i.e. missiles, aircraft, engines) were encountered during the research effort. Not the least of these was the difference in approaches among contractors in managing and controlling their materiel functions. In some companies, the day-to-day operation and management control of buying activities (including competitive decisions) were highly decentralized. At these locations there was little likelihood of developing any over-all company-wide data within the time frame of the research schedule. Further difficulties were underscored by the varying capabilities of contractors to research their historical records and to forecast with any degree of accuracy the amount of competitive procurement over several fiscal years. On this latter point, contractors stated that one-year Government funding and uncertain production requirements play an important part in limiting their ability to accurately forecast future materiel awards and procurement methods (i.e. competitive versus sole source).

A final problem was the difference in definitions of competition used by Government and industry procurement personnel.

This problem was frequently mentioned during discussions with both military and prime contractor personnel. The major difference of opinion concerned what constituted adequate price competition. Since the primary project objective was to develop a set of statistics showing the extent of competitive procurement at the prime contractor level, the definitions or ground rules used in compiling such data were of major concern. However, it was readily apparent that the time necessary to completely resolve the differences of opinion that existed on this subject would require a great deal more time than the project deadline allowed. As a result, after reviewing the latest pending ASPR definitions on this subject and discussing the matter with a cross-section of prime defense contractors, project members developed a set of procurement definitions for use in completing the competitive data worksheet as shown in Exhibit 6. For those contractors submitting statistics directly from their own internal records, a review of their ground rules was made and they were found to be very close to the definitions developed above.

D. DEVELOPING COMPETITIVE DATA

Since summary competitive data were not available, it was decided to obtain sample information covering as many dollars as possible in the selected prime contractor plants. Preliminary findings among five major defense contractors indicated that approximately half (50%) of the total prime contractor income was spent for materiel. Of that amount, it was noted that usually 10-15% of the purchase orders accounted for 70-90% of the total materiel dollar awards. Accordingly, a manual effort was initiated to compile a set of summary competitive statistics on the major subcontracts

and equipments which covered most of the material dollars but accounted for only a small portion of the total purchase order transactions. Exhibit 6 presents a competitive data worksheet together with associated instructions, used to compare the competitive information at selected plant locations. Of the nine prime contractors participating in the project, seven were asked to complete the data format on a selected major weapon system program jointly agreed to by the contractor and LMI. The remaining contractors agreed to submit competitive statistics on a specific division or segment of their company that was representative of the company's over-all competitive performance. A 30-day period of data collection and analysis was undertaken by the contractors, beginning in early November and concluding the first week of December.

E. SURVEY RESULTS

Exhibit 7 presents summary information on the total value of the dollars sampled. It should be noted that the dollars reported vary by company from two-year buy amounts to five-year buy amounts - only the total of reported dollars are shown on the summary. As indicated in the Exhibit, total dollars examined were $1.4 billion; this is approximately 60% of the total selected CFE universe of $2.3 billion. A summary of the total dollars examined is presented with a breakdown of competitive versus non-competitive dollars by individual contractors. A study of the aggregate data shows that of the $1.4 billion reported, approximately 20% was price competitive and 88% had been subjected to price or technical and design competition at one time, while 12% was awarded non-competitively. Recognizing that the total figures include a wide range of different systems, i.e.

INSTRUCTION FOR COMPLETION OF
PRIME CONTRACTOR COMPETITION IN SUBCONTRACTING
AND EQUIPMENT PURCHASING REPORT

1. PRIME CONTRACTOR COMPETITION IN SUBCONTRACTING AND EQUIPMENT PURCHASING REPORT - The purpose of this report is to determine the extent of competition obtained by prime contractors in placing their first tier subcontracts and equipment purchases. Dollar amounts are requested by Government fiscal years beginning with the first fiscal year of a program's life; consequently, both actual and forecast figures will be shown.

2. PRIME CONTRACTOR - Enter prime contractor name and division.

   Example: Lockheed Aircraft Company
   Lockheed/Georgia
   Aircraft Division

3. MAJOR PROGRAM - Enter Weapon System Program

   Example: C-141 Aircraft

4. CONTRACTOR REPRESENTATIVE - Enter name of person responsible for data in the report. Specify name, title, and telephone number.

5. TOTAL AWARDS TO PRIME CONTRACTOR - Enter total dollars for the selected weapon system awarded and expected to be awarded to prime contractor by Government fiscal years beginning with first fiscal year of program.

6. TOTAL AWARDS BY PRIME CONTRACTOR - Enter by Government fiscal years the total dollar amounts of awards both actual and forecast for subcontract, equipment and component purchases, tooling contracts, and raw material and standard item purchases made by the prime contractor.

EXHIBIT 6
(1)

7. MAJOR SUBCONTRACTS AND EQUIPMENT PURCHASES

a. Enter the sum of major subcontract and equipment purchase dollar awards both actual and forecast by prime contractor by Government fiscal year. (This category excludes purchases of raw material and standard bits and pieces.)

b. Categorize major subcontract and equipment purchase dollars (Para. 7a. above) in accordance with following definitions and show by fiscal years for each category its percentage of the total major subcontracts and equipment purchases:

CATEGORY I: "MULTI-SOURCE PROCUREMENTS"

(IA) Negotiated procurement with two or more selected suppliers when contract award is based on technical ability, rather than price competition. Multi-factor weighting system selections are to be included in this category.

(IB) Procurement on a fixed-price basis where two or more proposals have been received and contract is awarded to qualified low bidder based on price competition.

CATEGORY II: "FOLLOW-ON PROCUREMENTS"

(IIA) Follow-on negotiated procurement with original source where selection was based on technical performance or a multi-factor weighting system, (IA, above).

(IIB) Follow-on procurement with original source where selection was based on price competition (IB, above).

CATEGORY III: "ONE SOURCE SOLICITED PROCUREMENTS"

(III) Original and follow-on after one source solicited procurements.

EXHIBIT 6
(2)

PRIME CONTRACTOR COMPETITION IN
SUBCONTRACTING AND EQUIPMENT PURCHASING

PRIME CONTRACTOR _____ MAJOR PROGRAM _____ CONTRACTOR REPRESENTATIVE _____
DIVISION _____ TITLE _____ TEL. NO. _____

IDENTIFICATION			FY-		FY-		FY-		FY-		FY-		TOTAL	
TOTAL AWARDS TO PRIME CONTRACTOR			$		$		$		$		$		$	
TOTAL AWARDS BY PRIME CONTRACTOR			$		$		$		$		$		$	
MAJOR SUBCONTRACTS & EQUIPMENT PURCHASES			$	100%	$	100%	$	100%	$	100%	$	100%	$	100%
MULTI-SOURCE I	IA	DESIGN/PERFORMANCE COMPETITION	$	%	$	%	$	%	$	%	$	%	$	%
	IB	PRICE COMPETITION	$	%	$	%	$	%	$	%	$	%	$	%
FOLLOW-ON II	IIA	DESIGN/PERFORMANCE COMPETITION	$	%	$	%	$	%	$	%	$	%	$	%
	IIB	PRICE COMPETITION	$	%	$	%	$	%	$	%	$	%	$	%
III	III	ONE SOURCE SOLICITED	$	%	$	%	$	%	$	%	$	%	$	%

REMARKS:

EXHIBIT 6
(3)

EXTENT OF COMPETITION AT SELECTED PRIME CONTRACTOR PLANTS
ACTUAL AND FORECAST SUMMARY

Dollars in Thousands

COMPANY	PRICE COMPETITION		TECHNICAL COMPETITION		FOLLOW-ON AFTER COMPETITION		NON-COMPETITIVE		TOTAL DOLLARS EXAMINED		TOTAL DOLLARS AWARDED BY PRIME	PERCENT OF TOTAL EXAMINED
	$	%	$	%	$	%	$	%	$	%		
COMPANY A	41,866	17%	---	---	179,128	73%	26,286	10%	247,280	100%	373,050	70%
COMPANY B	8,300	3%	32,900*	11%	251,200	85%	600	1%	293,000	100%	341,500	85%
COMPANY C	---	---	149,000**	82%	---	---	42,000**	18%	191,000	100%	236,000	81%
COMPANY D	8,000	22%	---	---	---	---	26,000	78%	34,000	100%	54,000	63%
COMPANY E	46,058	37%	---	---	78,614	63%	---	---	124,672	100%	137,000	91%
COMPANY F	12,397	21%	30,610***	51%	---	---	16,796	28%	59,803	100%	140,000	43%
COMPANY G	5,639	32%	5,827	35%	839	5%	4,816	28%	17,121	100%	250,000	68%
COMPANY H	46,504	91%	---	---	---	---	4,526	9%	51,030	100%	51,030	100%
COMPANY I	108,224	29%	---	---	219,633	58%	47,733	13%	375,590	100%	741,060	58%
TOTALS	276,988	20%	218,337	16%	729,414	52%	168,757	12%	1,393,496	100%	2,303, 0	60%

* Combination of price and technical consideration under a multi-factor source selection procedure, placed here under Technical Competition to be conservative.

** Original technical and follow-on after technical competition combined; not able to identify separately from data submitted.

*** Air Force Directed Procurement.

EXHIBIT 7

SPARROW versus F4, in various stages of development (R/D and production), it is believed that the figures demonstrate that considerable competitive effort has been accomplished, is underway or is forecasted for achievement over the next several fiscal years. However, it is noted that a significant portion of the competitive dollars falls into the follow-on after initial price or technical competition category and, hence, may be susceptible to new competitive action over the next several fiscal years.

Further, it is believed that comparing individual contractor statistics showing activity in any one category would be misleading because of the differences in time periods covered, weapons system complexity, stability of design, stage of development, delivery and quantities, etc. This fact is clearly borne out by examination of any one of the competitive columns. For example, under the column title "Price Competition," the figures range from a low of 3% to a high of 91%, yet our field research strongly indicated that the contractor with the low competitive figure had in operation one of the strongest initial source selections and second source development programs examined. Consequently, we believe it is essential that contractor data be studied individually rather than by a comparison among contractors. Only in this manner will the statistics be meaningful and accurately reflect the adequacy of competition in contractor plants based on the peculiar variables extant in each case.

As previously mentioned, it was necessary, in order to get these data, to agree that prime contractor and program identification would be deleted from report summaries subject to general distribution. Appendix A, for which prior

distribution approval was obtained, contains such prime contractor and program identification.

F. COMPETITIVE SAVINGS

1. Savings Examples

The computation and recording of competitive procurement savings was studied in some detail at two prime contractor plants. These contractors will be referred to as Company A and Company B in this discussion.

Company A provided three separate examples of competitive procurement savings achieved over varying time periods. The first example, reflecting the total competitive procurement activity of one division during the first ten months of calendar year 1963, showed savings of $1,134,122. The second example presented several recent competitive procurements for which savings averaged 22.5%. Finally, an additional five competitive procurements accomplished during a recent period were provided which showed savings ranging from 39% to 9%.

Company B made available a summary of estimated savings to be obtained from the competitive procurement of 23 items (these are the same items mentioned in the earlier ECP discussion). Total estimated savings were $4,672,095 for two production buy quantities.

The savings reported by Company A are part of its own cost reduction program. They are post procurement net savings obtained by subtracting new source acquisition costs from the figure obtained by multiplying the prior unit price times current quantity.

Company B savings figures, on the other hand, are estimates based on low qualified bid responses submitted for Service approval via ECP procedure prior to the actual procurement action. Company B savings estimates include offsetting cost considerations such as additional spares, AGE, test equipment, trainer and publication costs required as a result of changing item sources. These offsetting costs are netted against price proposals for two annual buy quantities as previously mentioned.

The offsetting costs used in Company B's savings determination are largely estimates, but even with this imperfection it is believed that the resulting savings are more realistic from the point of view of "buying at the lowest net cost." This approach of looking beyond mere acquisition savings tends to identify beforehand potential horror cases.

The examples of both companies indicate that savings derived from the competitive procurement of CFE are substantial. The $1,134,122 reported by one division of Company A and the $4,672,095 reported by Company B, are the result of the competitive procurement of many medium unit cost items rather than the competitive procurement of a few high unit price items. For example, all of the 23 items included under Company B's ECP had unit prices of less than $1,000.

Discussion with prime contractors and examination of the savings examples provided supports the conclusion that considerable saving potential exists in the competition of equipment components below the subsystem level.

These items yield substantial savings per competition and, by their nature, are more susceptible to recompetition with less risk than are subsystems. The Company A savings average of 22.5%, which was reported as representative of that company's general experience, tends to support the DoD estimate of 25% savings on new competitive procurements.

2. Savings Potential

Based on the findings previously discussed, it is estimated that approximately 20-30% of the $7 billion of material dollars spent annually by the top 25 DoD prime contractors is for equipment and components below the subsystem level. Of this amount, our research findings indicate that it may be possible to shift between 5% and 10% (approximately $350-$700 million) from non-competitive to competitive procurement. In view of the considerable savings reported above, it is believed that substantial dollar gains can be generated as a result of increased competitive effort in prime contractor plants. Moreover, once these figures have been audited either by Government or contractor personnel, it should be possible to integrate the savings into the DoD Cost Reduction Program. The next section of this report presents recommendations for competitive planning and reporting of competitive results and savings.

SECTION IV

RECOMMENDATIONS

A. INTRODUCTION

This section of the report first summarizes current OSD and military department procurement reporting practices with emphasis on competition. This is followed by a recommended Department of Defense method for establishing competitive forecasts and reporting competitive progress at selected prime contractor plants.

B. DEPARTMENTAL REPORTING OF PRIME CONTRACTOR COMPETITION

Consistent with the ASPR, each military Service provides a review of major subcontracts and equipment purchases awarded by prime contractors at the time of subcontract placement. This function is accomplished by the Contract Administration Office having cognizance over the respective prime contractor facility. In addition to these administrative reviews specified in the ASPR, each military Service has developed or is in the process of developing a formal procurement review program to determine the adequacy of prime contractor purchasing systems. Several of these programs were reviewed during this project and the findings are presented below:

1. Army

The Army does not have a formal contractor procurement review program. In 1961, however, the Army Missile

Command initiated a summary reporting system to determine the amount of breakout and competitive procurement on major weapon system programs. Although the reporting was concerned primarily with breakout, MICOM has included both dollar figures and percentages of competitive subcontracting accomplished by prime contractors on each of its missile programs. An excerpted example of one page of the competitive summary report prepared by MICOM in FY 63 is shown in Exhibit 8. Based on discussions with Army field officers and prime contractor personnel, it was established that the competitive figures were developed from "best estimates" of prime contractor procurement people. There was no attempt on the part of the Army to define the term "competition" or provide a set of ground rules for use in preparing the data. Rather, the contractor exercised his own judgment in producing a set of figures to reflect the amount of competitive versus sole source subcontracting in his plant. MICOM officials indicated work was now underway to develop similar FY 64 data.

2. Navy

Discussions with Navy procurement people in the Office of Navy Material and Bureau of Weapons revealed that no formal system of prime contractor procurement evaluation now exists. The Navy indicated that on selected weapon systems (e.g. Tartar, Terrier) advance procurement planning data were requested from the prime contractor. This information identifies major subsystems and equipments and presents planning data on each item, including competitive versus sole source determination, number of bidders, successful bidder, plan for recompetition,

ARMY MISSILE COMMAND (MICOM)

*"PRIME CONTRACTOR BREAKOUT/COMPETITION REPORT"

	TOTAL	%	PRIOR TO FY 1962	%	IN FY 1962	%	FORECAST FOR FY 1963	
1. Total Value of Programs	473.22		74.00		189.80		209.42	%
2. Dollar Amt to System Prime Contr.	300.46	63.5	66.00	89.2	135.23	71.2	99.23	47.4
a. Dollar Amt of Sub-Contracts by System Prime Contractor	102.61	34.2	23.00	34.8	41.42	30.6	38.19	38.5
+Sole Source	28.82	28.1	4.00	17.4	11.26	27.2	13.56	35.5
+Competitive Procurement	73.79	71.9	19.00	82.6	30.16	72.8	24.63	64.5
3. Dollar Amt to Other Prime Contractors (Breakout)	120.51	25.5	2.00	2.7	44.03	23.2	74.48	35.6
+Sole Source	107.09	88.9	2.00	100	42.55	96.6	62.54	84.0
+Competitive Procurement	13.42	11.1			1.48	3.4	11.94	16.0
4. Dollar Amt to Gov't Agencies (Breakout)	52.25	11.0	6.00	8.1	10.54	5.6	35.71	17.0

	TOTAL NR	NR PRIOR TO FY 1962	NR IN FY 1962	NR FORECAST FOR FY 1963
5. Total Nr of Vendors and/or Sub-Contractors (Approx.)	8034	8034	5037	4727
6. Nr of Government Agencies	12	10	12	12
7. Nr of System Prime Contracts	2	2	2	2
a. Nr of 1st Tier Sub-Contracts	5	5	5	5
8. Nr of Other Prime Contracts	29	1	9	29
a. Nr of 1st Tier Sub-Contracts	35	35	20	35

* Small Business and Labor Surplus Data have been deleted.

NOTE: All $ Figures in Millions as of 30 June 1962.

problems and timing, etc. This appears to be an excellent planning effort and one that the Navy might well consider expanding to all its major weapon programs in the future.

3. Air Force

The Air Force has implemented a formal program of Contractor Procurement Review (AFM 70-3) at selected contractor plants. A list of contractors and plant locations under surveillance in this program is presented in Appendix C. The program has six years of operational experience and is designed to provid a comprehensive and continuous evaluation of prime contractor procurement policies and procedures. As part of this effort, the Air Force regularly compiles summary statistics on competitive and sole source procurements at each prime contractor facility. These statistics are developed locally by the Air Force Plant Representative's Office and forwarded to higher commands for periodic review and analysis. At AFSC Headquarters, efforts are currently underway to consolidate the individual statistical reports into summary data for over-all trend analysis and evaluation of prime contractor competitive performance.

A sample of the competitive report generated under the 70-3 is shown in Exhibit 9. These data were developed at a major prime contractor plant for a three-month period (March, April and May) in calendar year 1963. As indicated in the Exhibit, competitive dollars for the three-month period under consideration were 46.5% and non-competitive were 53.5%. An analysis of earlier competitive reports prepared under 70-3 procedures revealed similar patterns of competitive versus sole source procurements.

EXHIBIT 9

AIR FORCE: 70-3

PRIME CONTRACTOR COMPETITIVE REPORT

a.	Percent of P.O.'s competitively bid	48.0%
b.	Percent of dollar volume competitively bid	46.5%
c.	Average depth of competition	2.9
d.	Percent of P.O.'s with three or more bidders	58.3%
e.	Percent of dollar volume with three of more bidders	70.7%
f.	Average number of requests for quotations issued	3.3
g.	Percent of P.O.'s awarded single source	52.0%
h.	Percent of dollar volume awarded single source	53.5%
i.	Percent of competitive bid awards made to other than low bidder	4.0%
j.	Average depth of awards where more than one responsive bid was received	3.3
k.	Percent of P.O.'s lacking adequate documentation	4.0%

NOTE: This service test is based on a review of orders selected at random from a population of 420 orders (firm-fixed-price) having total dollar value of $12,013,966. The dollar value of the population ranged from $10,000 to $100,000. From the population of 420 orders, 25 were selected for review, having a dollar value of $742,942. Spare parts procurement again was the overriding factor in reducing the competitive procurement percentages.

It was noted, however, during the course of our research that the competitive statistics were based on a stratified or selected sample of the contractor's total population of purchase orders (i.e., one sample included 25 purchase orders out of a total universe of 420). Further, the items selected were chosen from a limited dollar range of purchase orders--$10,000 to $100,000 (see NOTE on Exhibit 9). As a result, it appears that most of the major subcontracts whose dollar awards are normally greater than $100,000 annually are excluded from the Air Force sample. Consequently, they would also be eliminated from the final competitive statistics. Since these major subcontract procurements represent a significant portion of the contractor's annual materiel expenditures (70%-80%), eliminating them from examination may create a bias in the sample. A discussion of these points with Headquarters, AFSC, revealed that new ground rules and an amended set of report formats are currently under development to raise the confidence level in the competitive statistics, and to provide for more comprehensive dollar coverage of contractor subcontract awards.

Recognizing these limitations, it is believed that the Air Force, through its 70-3 experience, is probably most advanced and most knowledgeable regarding the status of prime contractor competition at the subcontract level. In its present form, the AF 70-3 system does not attempt to make an early identification of sole source items susceptible to competition, or develop estimates of competition covering several fiscal years in the future, but it is believed that the Air Force could incorporate such changes with minimum effort and modification to the existing system.

4. Office of the Secretary of Defense

The Office of the Secretary of Defense does not have a formal system for reporting competitive results of prime contractor procurements. There are, however, two reporting systems currently in operation and one under consideration, which require summary information and statistical data from prime contractors:

a. Defense Contractor Planning Report (DCPR)

The DCPR reporting system is designed to collect, store and analyze cost and production data on major DoD weapon programs. Currently, the DCPR is oriented toward production data on missile, aircraft and space programs. One of the major objectives of DCPR reporting is to develop uniform planning data on a product basis for estimating future program costs. Since planning or forecasting is an integral part of this data system, it may be possible to include competitive forecasting data as part of a prime contractor's DCPR submissions.

b. Defense Small Business Subcontractor Reporting

This report is submitted monthly by all major defense contractors who maintain small business subcontracting programs. The report covers summary statistics (historical only) on the amount of prime contractor materiel dollars awarded to small business in a given fiscal year. At the present time, small business statistics do not include breakout of competitive versus non-competitive dollars. It is believed, however, that this reporting system, since

it is already in operation at all major contractor locations, might be modified and provide a ready vehicle for compiling competitive statistics. On the other hand, since this system requires reporting action by contractor personnel only at the time of contract placement, it is probably not well suited to providing advance planning, competitive forecasting-type data covering several fiscal years in the future.

c. DoD Cost Reduction Reporting

These reports currently cover in-house cost reduction activities of the military departments. It appears likely, however, that the Department of Defense may extend this program to prime contractor plants in the near future. In this event, competitive reporting and savings results at prime contractor's plants might well become an integral part of the expanded DoD Cost Reduction Program.

5. Summary

A number of the current military procurement reporting systems, either in operation or under development, are making excellent progress toward developing an effective method of appraising prime contractor materiel operations. Several of the systems reviewed have features which other Services could profitably adopt. Similarly, at the OSD level, the Defense Contractor Planning Report (DCPR) and Defense Small Business Reporting Procedures are in operation and offer a potentially rapid means of collecting competitive information from prime contractors. On balance, however, it appears the quickest and most effective means of implementing competitive forecasting and progress

reporting in prime contractor plants is to tie this requirement into the DoD Cost Reduction Program. As regards longer-range applications, consideration should be given to implementing a Contractor Procurement Review System (similar to the Air Force 70-3) at all major Department of Defense prime contractor plants. The following paragraphs present suggested guidelines for advance procurement planning, item forecasting and progress reporting of competitive results at selected prime contractor locations. The purpose of these recommended procedures is not to replace any efforts now underway in either the military departments or contractor plants, but rather to provide suggestions for integrating these efforts into the Department of Defense Cost Reduction Program.

C. RECOMMENDED COMPETITIVE FORECASTS AND SUMMARY REPORTING

1. Introduction

The material presented in this part of the report deals with development of DoD-wide forecast of prime contractor competitive potential. The discussion centers on the selection of items most susceptible to competitive procurement, and the advance planning required to achieve optimum competitive performance. The recommendations offered are intended to supplement existing competitive efforts underway in both military departments and contractor plants.

General guidelines are set forth to:

a. Forecast the CFE competitive dollar potential, three to five years into the future;

b. Identify items requiring advance planning for competitive analysis and develop such a plan for each item; and

c. Develop a practical method of reporting results of competitive performance on a uniform and periodic basis.

2. Planning Framework

A suggested planning scheme for use by prime contractor personnel in developing a competitive forecast is presented in Exhibit 10. This Exhibit consists of three parts and five steps. The discussion which follows is keyed to these parts and steps within each part.

a. Part I - Competitive Potential Forecast and CFE Item Selection

It is emphasized at this point that the successful accomplishment of competitive planning by prime contractors depends in large measure on Government procurement agencies providing reliable and accurate forecast program requirements three to five years in the future. Without such information it will not be possible for prime contractors to initiate the first step in the competitive planning guideline described below.

Step No. 1: Analysis - Develop the Competitive Potential

After receipt of Government program requirements, the first step in the planning guidelines is to identify the gross potential of CFE subcontracts and equipment purchases covering several fiscal years (e.g. three years) in the future.

GENERAL PLAN OF CFE ITEM SELECTION FORECAST AND ANALYSIS FOR COMPETITIVE PROCUREMENT

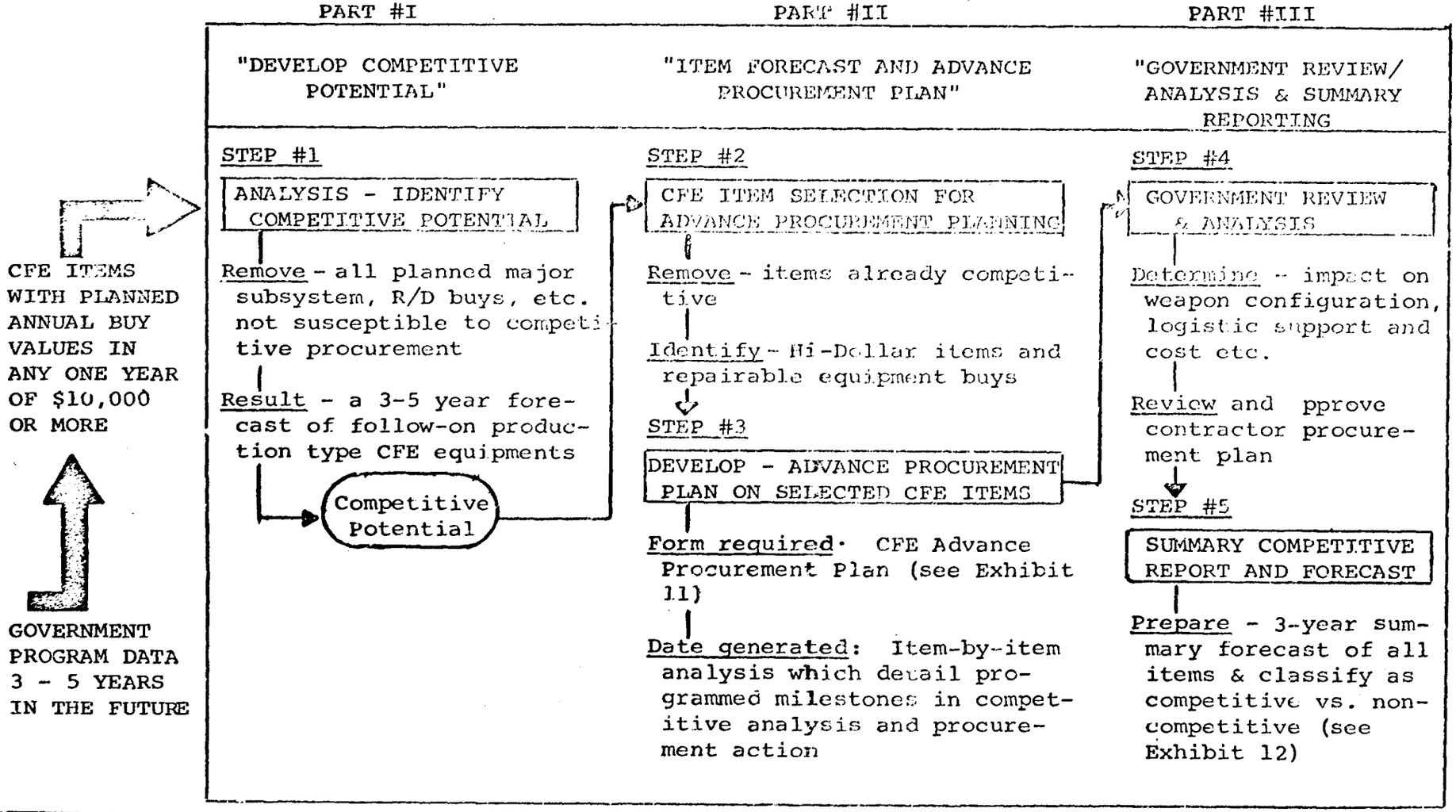


EXHIBIT 10

Only items with planned annual buy values of $10,000 or more in any one year of the three-year forecast period should be considered candidates for inclusion in the item forecast. The CFE competitive potential is developed by removing all major subsystem buys, plus all R/D and Service-type buys over the three-year period that are obviously uneconomical to compete. At a minimum, the competitive potential forecast should include, for each item, the planned dollar obligations each year. No forms or other guidelines are recommended for the purpose of developing the CFE competitive potential, since each contractor will necessarily generate these data from his own internal budget, programming, requirements documents and other records.

Step No. 2: Select High-Dollar CFE Equipments and Repairable Items from the Competitive Potential

Once the competitive potential has been developed, the next step is to segregate high-dollar items and repairable equipments from all other forecasted hardware buys. The purpose of this classification is to identify those few items which account for the largest percentage of total anticipated procurement value over the three-year period of the forecast. The tentative criteria recommended for this purpose is $50,000 or more planned annual buy value or a repairable equipment. It is estimated that the high-dollar/repairable criterion will produce a total of about 200-300 items for study on a major weapon system. According to figures developed

in the historical market survey, such items will represent approximately 10%-20% of all CFE procurement actions, but 90% or more of the total dollars in the competitive potential forecast.

Each of these items should receive detailed advance procurement planning. Accordingly, the minimum information on each item should include, in addition to planned obligations each year, appropriate identification of the item and program; current method of procurement; and a planned delivery schedule by fiscal year quarters. One method of displaying this information is illustrated later in this part.

b. Part II - Item Advance Procurement Planning

Step No. 3: Analysis - Develop an Advance Procurement Plan for Each High-Dollar Item and Repairable Equipment

The individual procurement plans will serve as active reference documents for each item to develop a summary report classifying items and dollars in each year of the forecast as either (a) competitive potential, or (b) non-competitive. Recommended advance procurement planning criteria and a suggested format are presented in the following pages of the report.

Step No. 4: Government Review of Contractor Advance Procurement Planning

Once advance procurement plans have been completed for each high-dollar materiel item and all repairable equipments, the data should be reviewed

by the cognizant military procurement agency prior to contract placement. The objective of this review is to assess the impact of source changes on major procurement areas such as weapon system configuration, spares support, logistics impact (i.e., real costs considerations), etc. This analysis is particularly important where the items under consideration interface with a number of subsystems in the program or are repairable equipments currently procured on vendor-design drawings. In either case, Government screening prior to contract awards is essential to insure that sound well-balanced competitive decisions are made.

Step No. 5: Summary Reporting of Contractor Competitive Planning

The final step in the competitive decision process is to summarize all CFE equipment items studied and produce a summary report and forecast of the CFE competitive potential for the three-year period. It should be stressed again that identification of items and dollars as competitive potential should not, of itself, determine the goals for competitive procurement; it merely defines the scope and focus of examination for possible competition. Within the area of competitive potential, however, it should be possible for prime contractors to establish realistic engineered targets for competitive procurement and to measure progress toward them. A competitive potential report and forecast is discussed in the final section of this part of the report.

3. Item Selection and Advance Procurement Planning[1]

a. Introduction

The selection of items for competitive analysis is performed together with development of a competitive procurement plan for each item. A suggested planning document is presented in Exhibit 11, as the "CFE Advance Procurement Planning Form," with illustrative entries for the planning period FY 64-FY 68. It should be filled out for each selected CFE item, identified as potentially competitive in the screening process described above. The recommended steps that follow describe the entries on the form.

b. Item Identification Data, Program Obligations and Delivery Requirements

These elements of information should be entered for each item, as illustrated in Exhibit 11, from the information generated in the competitive potential forecast for each high-dollar and repairable equipment item.

c. Decision Steps

(1) Already Competitive Items

The first step is to eliminate from further analysis CFE items already being procured competitively, unless there is reason to review the decision at this time. If not, the planned obligation dollars should be entered as "competitive"

---

[1] A comparison of the planning steps recommended in the following section with those proposed for in-house DoD planning for the procurement of end items/subsystems (LMI Project 3A-1) will disclose a remarkable degree of similarity.

DD ADVANCE PROCUREMENT PLANNING FORM

ITEM IDENTIFICATION _____ CONTRACTOR _____

PRODUCER _____ PROGRAM _____ FY ____ CURRENT PROCUREMENT METHOD _____

Estimate Developed from Programming-Budgeting, Requirement Documents

Summary of competitive Potential Forecast

Program, Obligations and Delivery Requirements (Thousands of Dollars)	FY'64	FY'65	FY'66	FY'67	FY'68
	10 20 30 40	10 20 30 40	10 20 30 40	10 20 30 40	10 20 30 40
Required delivery schedule	700 1st Production buy	▲1200	▲1200	▲1300	▲500
Planned $ obligations and dates	▲100	100 200 300 300 FY'64	300 300 300 300 FY'65	300 300 300 300 FY'66	300 300 300 500 FY'67 FY'68
Competitive Analysis Milestones:					
1. Develop advance planning document	▲				
2. Review manufacturing data	▲				
3. Preliminary competitive analysis	▲				
4. Bid preparation & Public.	▲				
5. Vendor evaluation	▲				
6. Final competitive analysis	▲				
7. Government review - configuration - Logistics Impact Analysis	▲				
8. Competitive award	▲				
9. Administrative and production leadtime summary (1st competitive buy)	A.L.T. 9 Mo ▲	Prod. L.T. 6 Mo ▲ 300	300 300 300 300 FY'65	300 300 300 300 FY'66	300 300 300 500 FY'67 FY'68
10. Earliest competible buy plan (by year of obligation)	(700) NC	(1200) Comp	(1200) Comp		

Remarks: (e.g. Reasons for non-competitive decisions, program changes, CFE-GFE transfers, etc.)

EXHIBIT 11

at the bottom of the form for each year (Line 10, Exhibit 11).

(2) Economic Analysis

After the total competible buy has been determined for the three-year period, it is possible to assess in broad terms the validity of further competitive analysis. If the buy program is phasing out so that none, or an insignificant part of the procurement can be competed, the item should be eliminated at this point and entered as non-competitive. It may also be possible to make certain obvious eliminations on economic grounds. For example, if the total competible buy is $1 million and a new source will require a qualification and special testing costing $500,000, it is hardly useful to proceed with detailed analysis. When items are eliminated in the planning phases for reasons such as this, the fact should be noted on the advance planning form.

Items determined to be suitable for competition, on the other hand, but not yet procured competitively, should continue through the analysis.

(3) Mobilization Base and/or Limited Quantity Requirement

The next question is: Will the item require a single source for all or part of the program period in order to sustain a production base for mobilization or for another specified type of acquisition? The existence of a mobilization production requirement will not of itself necessitate

a single source. Some special cases, however, may do so - such as a minimum single facility rate of production to maintain a "warm" base or the retention of facilities, tooling and skills at a Government-owned-and-operated plant. Present programs to develop optimum inventory production base relationships will improve determinations in this area. Another example of restrictive acquisition would be a limited quantity requirement to be bought out over a short period, with no anticipated follow-on.

Whenever considerations such as these require a planned single source, the reasons should be specified on the advance planning form and the non-competitive obligations entered on Line 10 by year. If any part of the programmed procurement is considered competible, analysis should continue.

(4) Manufacturing Data

Is a manufacturing data package available now? The purpose of this step is to determine if the present source has already delivered a manufacturing data package and to determine the availability, adequacy and reliability of the data package. These facts should be entered on the advance planning form as of the planning date (Line 2, Exhibit 11). If not, the anticipated delivery date for data should be ascertained from the current producer.

(5) Rights in Data

Are the prime contractors' rights clearly established to use the manufacturing data for

competitive procurement purposes? If the contractor has clear rights to use all data, no further examination is needed. If the present source has established proprietary rights in all or part of the manufacturing data, the contractor should review alternate methods of obtaining competition. It is the expressed policy of the Department of Defense "to encourage inventiveness and provide incentives therefore by honoring the proprietary data [as defined in ASPR 9-202.1(a)] resulting from private development, and hence to limit demands for data to those which are essential for procurement purposes." The alternate methods of obtaining competition may include some or all of the following:

(a) Use of Descriptive Specifications, including:

(i) Development of performance specifications;

(ii) The use of samples or models if the item is not complex; and/or

(iii) The designation for procurement purposes of a brand name "or equal."

(b) Purchase of Rights

If no other basis for competitive procurement is available, the contractor should consider the purchase of unlimited rights in the relevant data and drawings. This method is to be used only if:

(i) There is a clear need for the item;

(ii) There are no suitable items of alternative design;

(iii) The existing source has inadequate capacity for defense needs;

(iv) The item can be manufactured by others without special manufacturing, quality control or calibration processes or techniques or other secrets of production which are not revealed by product inspection or analysis or by technical data which are procurable; and

(v) The existing source refuses to license or train additional competing sources.

The purchase of unlimited rights in privately developed proprietary data for the purpose of establishing competition should be undertaken only under closely controlled conditions.

d. Manufacturing Criteria

Concurrent with procurement data review, the contractor should establish the equipment's susceptibility to competitive procurement based on manufacturing criteria such as design stability; equipment reliability and safety; special tooling processes; materiel controls; new test requirements; additional inspection facilities, etc. It is expected that each contractor will make maximum use of existing manufacturing criteria tailored to the specific procurements under consideration.

e. Date of Competible Award

As the above elements are estimated, they should be summarized and entered on the advance planning form as Line 8.

f. Estimation of Total Administrative Lead Time

In the context of advance planning, the "total administrative lead time" is defined as the minimum total time from development of a procurement plan to a competitive contract award. Accordingly, the contractor should, based on the milestones established above, include an estimate of administrative or in-house lead time required to place a competitive contract. This includes time estimates for manufacturing data analysis, vendor proposal preparation, contractor evaluation, Government review, contract placement, etc.

g. Estimation of Total Production Lead Time for New Source

Again, an estimate is required of the minimum total time between a competitive award to a new source and the first delivery from such a contract. This may comprise some or all of the following elements, in addition to normal production lead time:

(1) Facilities

This will comprise lead time to provide facilities if required.

(2) Tooling and Set-up Time

(3) Qualification

This will represent the time for qualification or other approval testing of a new source's product, after award. In some cases, this may be accomplished before award through the Qualified Product List procedures. If so, the fact should be noted on the planning form.

(4) Quality Control

This will include any additional time to prepare and install a quality control system if required.

(5) Support Equipment

If new test or support equipment will be needed for an item procured from a new source, any additional time required to procure such equipment should be included here.

As for the determination of production lead time, concurrency should be used to maximum in estimating these elements. Based on the resulting total production lead time, the first delivery milestone should be entered on the planning form (Line 9).

h. Competible Obligations

The competitive award and delivery milestones should then be compared against the planned obligations and required delivery schedule in the heading of the form. At this point, a determination can be made of the first year in which competitive procurement can be expected and whether it should be for part or all of the year's requirement. In the example illustrated by the form (Exhibit 11), the earliest delivery possible from competitive procurement falls at the beginning of required deliveries for FY 65. Following the first competible procurement, total competible obligations should also be determined over the three-year period and entered on the form by year.

i. Re-Cycle

If the item remains in the potentially competitive category, appropriate milestones should also be developed for subsequent competible procurements following the first buy. These should incorporate reduced estimates, if appropriate, of administrative and production lead time after the first introduction of a new source. If a multi-year buy is accomplished, this should be recorded in the Remarks Section of the Advance Procurement Planning Format.

4. Summary

The completion of the advance planning form through the above decision process will provide a scheduled framework for competitive analysis and procurement action. It should be retained for this purpose and kept up to date with any changes in the item's program or status. In addition, the form serves to segregate, at the time of planning, items and procurement dollars which are considered potentially competitive from those which are clearly non-competitive. It, therefore, can serve as the basis for a summary report of the forecast competitive potential of CFE equipment items over the next three years. This is discussed in the next section.

D. SUMMARY COMPETITIVE POTENTIAL REPORT AND FORECAST

The next planning step is to summarize all advance planning into a competitive summary report. This report should be uniform throughout the military departments and prime contractor plants. A suggested format is illustrated in Exhibit 12. In addition, to insure compatible data, it is

SUMMARY -- COMPETITIVE POTENTIAL REPORT AND FORECAST (CFE)

(Thousands of Dollars)

LINES (1) CONTRACTOR _____ PROGRAM _____ Tel. No. _____ Ext. _____

MATERIEL DIRECTOR _____ Date _____

(2)		Selected CFE Items	FY '64 Total	FY '64 Comp.	FY '64 Noncomp.	FY '65 Total	FY '65 Comp.	FY '65 Noncomp.	FY '66 Total	FY '66 Comp.	FY '66 Noncomp.
		#1									
		#3									
		#4									
		#2									
		#13									
		#25									
		#38									
		#41									
(3)		CFE Competitive Potential									
(4)	DOLLARS	Major Subsystems & R/D Buys, etc.									
(5)	DOLLARS	Other Purchase Orders									
(6)		Total Materiel Awards									
(7)		Total Competitive Potential Items									
(8)	ITEMS	Major Subsystems & R/D Buys, etc.									
(9)	ITEMS	Purchase Orders (Under $10,000/Yr)									
(10)		Total Purchase Order Transactions									

NOTE: All Dollars Reflect Purchase Order (P.O.) Commitments.

EXHIBIT 12

recommended the Department of Defense provide a uniform set of definitions to contractors for compiling and summarizing competitive statistics. In this regard either the most recent definition of "adequate price competition" developed by the ASPR Subcommittee or the current definition of price competition used to complete the DoD Individual Procurement Action Report (DD 350) may provide an acceptable baseline for analysis.

The report at the contractor level should include all CFE items originally selected for analysis, whether already competitive, non-competitive or partly or wholly competible. It should give, for each item, the non-competitive, potentially competible and total dollars planned for obligation in each year of the three-year period. This summary can be obtained from Line 10 of the Advance Procurement Planning Form. The report should be supplemented by brief explanatory entries.

Dollars and item data will be totaled as follows: Below the high-dollar total, a single entry should be made of anticipated obligations each year for items which do not meet the competitive potential selection criteria (i.e. R/D buys, purchases less than $10,000). Since these items are not subject to individual planning, the potentially competitive and non-competitive [illegible] recorded in summary form only. The final [illegible] overall company-wide competitive [illegible] obligations for CFE items subsystems [illegible] each year of the period, segregated into competitive versus non-competitive planned dollar awards.

The "competitive potential" total in such a report should represent a realistic scope within which efforts to secure

competition will be concentrated. On the basis of historical data and continuing experience, the contractor and the military departments can establish goals for achievement of actual competitive procurement, and can follow up progress as competitive analysis and action take place.

The summary plan derives from basic programming information and, therefore, should be developed with the annual program-budget cycle. Revisions to the basic forecast can be submitted at more frequent intervals, based on changes to advance item plans.

E. PROGRESS REPORT OF COMPETITIVE ACHIEVEMENT BY PRIME CONTRACTORS

This feedback report of prime contractor actuals versus planned achievement is the final step in the CFE competitive decision process. It is recommended that the competitive results and associated dollar savings generated by prime contractors be reported to the Department of Defense. To minimize reporting time and efforts, it is suggested that the CFE competitive potential items be coded at the time of procurement planning so that, when the contract is awarded, the results can be compiled and a summary report prepared. A suggested format for this report is contained in Exhibit 13. The report includes a common code of identification, item description and columns for planned competition, actual achievement and amount of savings generated as a result of competition. It is believed that this report should be submitted quarterly through the respective military departments to the Office of the Assistant Secretary of Defense for analysis and incorporation into the DoD Cost Reduction Program. Further, it is suggested that these

CFE COMPETITIVE FEEDBACK REPORT

CONTRACTOR_____ PROGRAM_____ FY____ PERIOD COVERED (Quarterly)_____

CFE ITEM CONTRACTS AWARDED	CONTRACT PRICE (000)		COMPETITIVE RESULTS		SAVINGS (TRANSFER FROM SOLE SOURCE TO COMPETITIVE PROCUREMENT)		REMARKS
Item	Current	New	Planned	Actual	$	% of Current Producers' Price	
#1	1000	750	Comp.	Comp.	250,000	25%	Savings cover 2 FY's; 1st time competitive
#5	500	500	Non-Comp.	Non-Comp.	---	---	Insufficient quantities
#7	300	200	Non-Comp.	Comp.	100,000	33%	New source qualified under 2nd source development program
#12	200	190	Comp.	Non-Comp.	---	---	No bids received-- Negotiated 5% price reduction with present source
TOTAL	2000	1640			350,000		

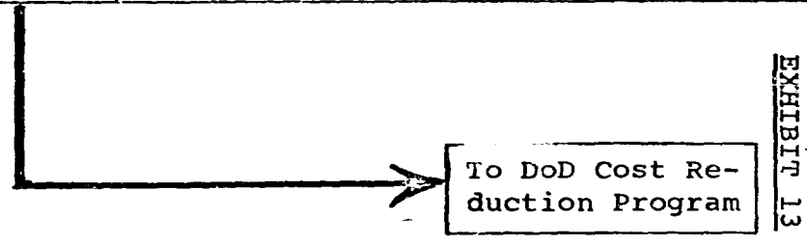


EXHIBIT 13

NOTE: All Dollars Reflect Purchase Order (P.O.) Commitments

savings figures be audited by contractor personnel prior to submission to the Department of Defense.

In addition to the selected CFE item progress report, it appears desirable to examine periodically the over-all competitive performance of Department of Defense prime contractors on a company-wide basis. Accordingly, Exhibit 14 provides a suggested format for reporting total competitive results versus planned achievement at selected major DoD prime contractor plants.

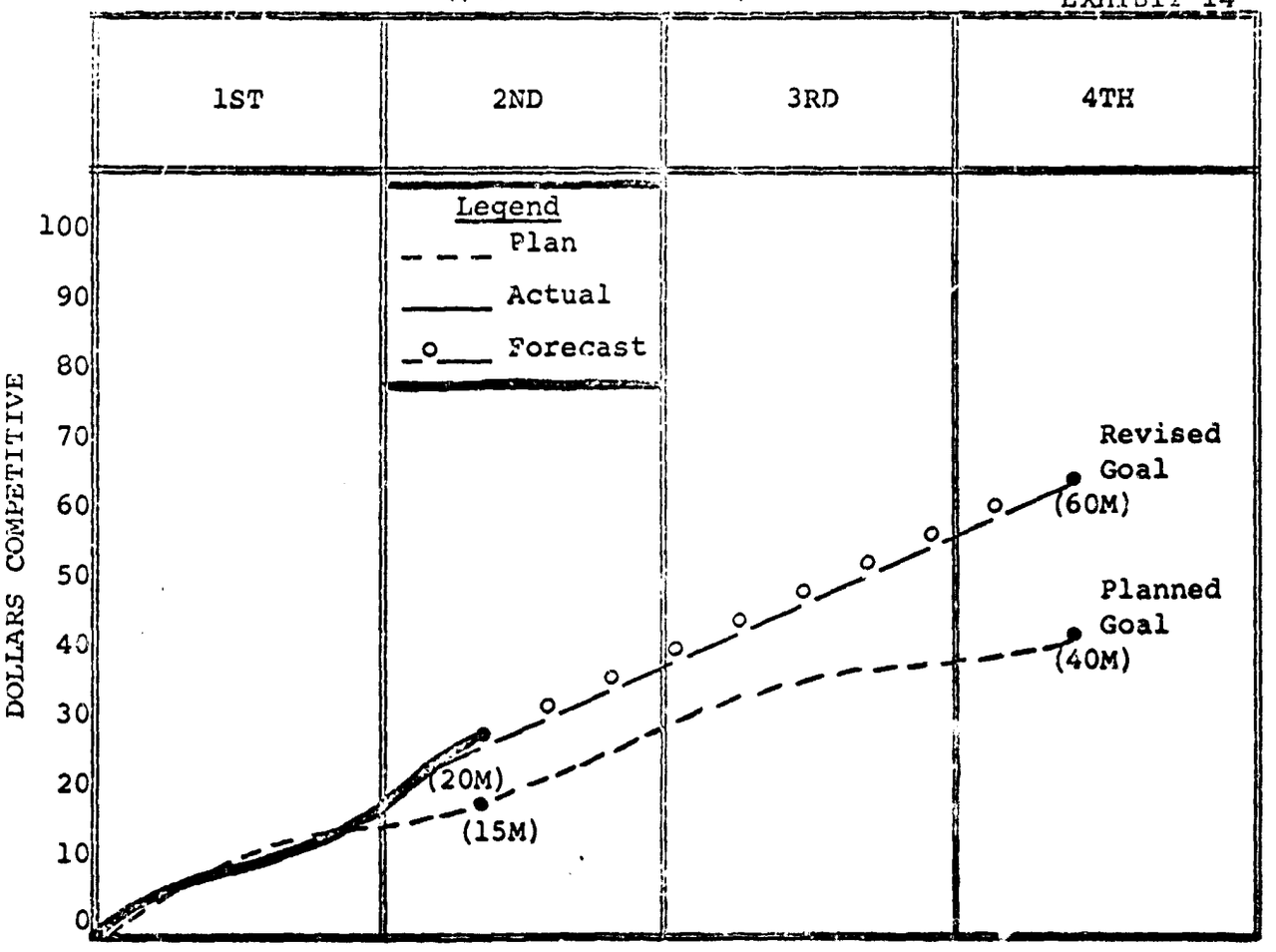
It is recommended that this report include both planned and actual competitive and non-competitive dollars and percentages on a quarterly and year-to-date basis. The planned or forecast figures can be obtained from the summary competitive forecast report outlined in Exhibit 12. The actual figures should be developed from internal company procurement control/reporting system statistics. It is recognized that some companies may find it difficult initially to report actual figures of total purchase order placements due to lack of available statistics. In this event, it is recommended that prime contractors use estimated figures until such time as actual results can be obtained directly from their internal management data systems.

It was observed during the field survey portion of the project that a majority of the prime contractors were either already operating, in the process of developing or planning to design a more advanced automated management data system to better control their materiel operations. As a result, it is believed that most contractors can now provide, or will be able to provide shortly, a complete, accurate and up-to-date picture of their competitive performance on Department of Defense contracts.

PRIME CONTRACTOR COMPETITIVE PERFORMANCE REPORT

($'s and Millions)

EXHIBIT 14



			QUARTERLY		YEAR TO DATE	
			$	%	$	%
1ST	Comp.	Plan	5	17%		
		Act.	5	17%	5	13%
	Non-Comp.	Plan	25	83%		
		Act.	25	83%		
2ND	Comp.	Plan	10	50%		
		Act.	15	75%	20	50%
	Non-Comp.	Plan	10	50%		
		Act.	5	25%		
3RD	Comp.	Plan	20	50%		
		Act.				
	Non-Comp.	Plan	20	50%		
		Act.				
4TH	Comp.	Plan	5	50%		
		Act.				
	Non-Comp.	Plan	5	50%		
		Act.				
TOTAL	Comp.	Plan	40	40%		100%
	Non-Comp.	Plan	60	60%		

NOTE: All Dollars Reflect Purchase Order (P.O.) Commitments.

Finally, it is important to note that, should the Department of Defense adopt these recommendations to survey its top 25 prime contractors, using the formats suggested in this section and in Exhibit 6, or similar formats, it will be necessary to secure Bureau of the Budget approval as specified in the Federal Reports Act.[1] Anticipating this requirement, the format shown in Exhibit 6 was submitted to the Bureau of the Budget for approval, even though the number of companies actually participating in the study was below the mandatory Bureau of the Budget approval level of ten. The Bureau approved the format through February 1964 for the requested maximum of 15 companies. While time and contractor numbers are inadequate for actual DoD implementation, it is believed that this test exercise demonstrates the feasibility of future approval under the actual conditions of DoD implementation.

[1] 5 USC 139.